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OHSAS 18001: 2007
ISO 14001: 2004
ISO 9001: 2008

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Dear Ms. Rosen,

Below and attached is information responding to the allegations in the Findings of Violation dated March 23, 2015 (the FOV). Heritage Thermal Services (HTS) appreciates the opportunity to present this information. HTS maintains a focus and high priority on its compliance responsibilities and looks forward to discussing these issues with EPA in our June 18, 2015 meeting. After an introductory overview of the main issues presented, this document responds to each of the alleged violations.

INTRODUCTION

HTS has a corporate commitment to its employees and the community to operate safely and in compliance with applicable laws and regulations. Following federal Maximum Achievable Control Technology (MACT) regulations for the hazardous waste combustion (HWC) industry, HTS' Title V Operating permit, Permit No. P0084372 (effective January 12, 2009) (the "Air Permit") sets strict emission limits for hazardous air pollutants (HAPs) and requires that the facility establish and maintain Operating Parameter Limits (OPLs) that help ensure the HAP emission limits are met. Furthermore, HTS operates its incinerator with a functioning automatic waste feed cutoff (AWFCO) system. As required in the Air Permit, the AWFCO automatically cuts off the hazardous waste feed to the kiln in a variety of upset situations, including when any emission standard or OPL is exceeded.

Whenever an OPL exceedance or other exceedance of a MACT standard occurs at the facility, HTS follows a detailed and rigorous internal investigation procedure to identify the root cause of the exceedance and to take corrective actions to minimize the impact and reoccurrence of the exceedance. A summary of that protocol is **Attachment 1** to this submission. The protocol begins with an immediate initial investigation of the exceedance by the control room operator and incineration group manager that identifies immediate corrective actions to take to minimize potential excess emissions and minimize the duration of the exceedance. These immediate corrective actions can include restricting feed into the kiln. In addition, an Investigation Team also meets weekly to review any OPL exceedances from the previous week and identify the root cause of each exceedance.

During the investigation of each OPL exceedance, members from the various work segments at the facility (Environmental Health and Safety, Incinerator Operations, Production Management, Waste Approval, Management including the leadership team and company officers, and Balance of Plant) review process data, waste feed rates, waste profile data, and video evidence surrounding the event. The group determines a primary cause and any changes that can be implemented to prevent a future occurrence. When the root cause is identified, HTS takes prompt action to address the issue. These investigations can and have resulted in physical changes to the facility, changes to waste stream processing or acceptance, and changes in communication.

Exceedances are also reported to the regulatory agencies as required by the permit. HTS self-reported all the exceedances alleged in the FOV in the periodic reports submitted to Ohio EPA pursuant to regulatory and permit requirements.

As is discussed in detail below, many of the exceedances alleged in the FOV were the result of clinker falls, which are malfunctions pursuant to HTS' startup, shutdown and malfunction plan (SSMP) required by its Air Permit. The SSMP has been provided to Ohio EPA as required by the Air Permit and has been integrated into that permit. Ohio EPA has reviewed the SSMP and has never objected to the characterization of clinker fall as a malfunction. When the malfunctions causing the alleged exceedances occurred, HTS followed the procedures in its SSMP to minimize the duration of the exceedances and any effect on air emissions and to prevent the reoccurrence of the events that caused the exceedances.

With respect to the recordkeeping allegations, HTS's system for monitoring the pressure in the secondary combustion chamber (SCC) and the inlet and outlet shrouds meets the regulatory requirements in 40 C.F.R. § 63.1201(a) and 63.1211(b). As explained below, HTS monitors pressure data from the combustion system at a frequency adequate to detect and respond to combustion system leak events. Furthermore, HTS also records data in the operating record that allows the company to verify the operation of the system, thereby documenting compliance with the applicable MACT standards and also records specific instantaneous pressure data when any combustion system leak occurs in order to evaluate the cause and extent of the event. .

The remainder of this letter provides further information about activities underlying the alleged exceedances.

RESPONSES TO ALLEGED VIOLATIONS

1. Clinker falls are malfunctions

US EPA alleges that between November 18, 2010 and December 31, 2014, HTS experienced "routine clinker fall" events. HTS strongly disagrees with the characterization that these events are routine. Ash fall events that result in OPL or other permit exceedances – known as clinker fall events - are infrequent, unpredictable and not reasonably preventable. In short, they are malfunctions.

Flue gas exiting the rotary kiln most often contains small particles of ash. These particles have the potential to accumulate on the sidewalls and ceiling of the Secondary Combustion Chamber (SCC) and ultimately sluff off the walls of the SCC into the slag quench tank, a water-filled tank at the base of the SCC. The slag quench tank serves several purposes: it provides a seal in the system to maintain a negative pressure; it quenches the slag coming out of the kiln; and the water also cools the ash fall material by evaporation. In normal operations, the accumulated ash that sluffs off the SCC into the quench tank is cooled without any excessive release of steam or over-pressurization, and OPLs are not affected. Because ash/slag buildup is inherent to the combustion process, it is routine that ash accumulates on the SCC and sluffs into the slag quench tank without causing OPL or other MACT exceedances.

Infrequently, however, when the accumulated ash falls from the walls of the SCC into the quench tank, the heat transfer results in a (generally minor) pressure increase within the incineration process for which the operator is unable to compensate. These events, referred to as "clinker falls", result in failure to maintain the SCC Pressure OPLs and may cause THC exceedances. They are malfunctions.

As defined in 40 CFR 63.2, "*Malfunction* means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions."

HTS is required by permit and federal regulation to maintain a startup, shutdown and malfunction plan (SSMP). See Permit Condition C. 5.d.(2).a, 40 C.F.R. 63.1206(c)(2). HTS submitted its first SSMP to Ohio EPA, pursuant to the Air Permit, in 2003 when the HWC MACT was first applicable. HTS' most recent SSMP is dated July 2012. Over the years, the SSMP has consistently identified clinker falls as malfunctions. (This is also standard in the industry.) Ohio EPA has reviewed HTS' submitted SSMPs over the years and has never objected to the identification of clinker falls as malfunctions. When a clinker fall occurs, HTS follows the procedures set forth in the SSMP.

In the 1,517 days between November 18, 2010 and December 31, 2014, there were only 53 clinker falls (i.e. ash falls that resulted in OPL and/or THC exceedances). HTS followed its SSMP and permit requirements in response to these clinker falls. The automatic waste feed cutoff (AWFCO) system and other operational interlocks at the facility also minimize the potential impact of clinker fall events on air emissions.

Clinker falls are unpredictable, given that normal ash accumulation in and sluff from the SCC does not result in exceedances. Finally, clinker fall is not reasonably preventable. The fundamental problem is that operators cannot see into the SCC to determine if ash is building up. As described in more detail in **Attachment 2**, HTS has investigated methods to regulate ash buildup on the SCC walls or otherwise anticipate when the falling material will lead to an OPL exceedance. For example, HTS investigated several monitoring technologies to try to "see" ash buildup in an effort to reasonably prevent clinker fall. Each of the monitoring technologies had its own limitations that made the technology unsuitable for HTS' application. Based on this investigation, HTS could not identify any technology that could reasonably prevent general clinker fall.

HTS has been able to isolate and eliminate the most significant type of clinker fall malfunction, however: energetic ash fall. Following its investigation procedures and obligation to try to minimize or eliminate the causes of malfunctions, HTS has learned that an energetic ash fall is characterized by the type of waste incinerated. An energetic ash fall occurs when the ash that falls into the quench tank is of such a nature that heat transfer occurs very rapidly. Depending on the amount of energetic ash build up, this rapid heat transfer can generate enough pressure to damage the system. As described in more detail in **Attachment 3**, HTS has taken effective measures to prevent this type of fall by identifying the type of waste that results in energetic ash and voluntarily refusing to accept the waste. The effect of the corrective actions implemented was that HTS halted receipt of 16.5 million pounds of waste, resulting in significant loss of revenue.

In the case of unavoidable clinker fall malfunctions, HTS follows its SSMP to minimize the duration and severity of the exceedance. HTS reports OPL and other MACT exceedances as required by its Air Permit.

Given the information above, HTS respectfully asserts that the allegations in the FOV stemming from clinker fall malfunctions are not violations subject to enforcement.

2. Alleged OPL and THC exceedances that should be removed from the FOV

40 C.F.R. 63.1206(b)(1)(i) requires that the hazardous waste MACT emission standards and operating requirements apply at all times except during startup, shutdown, and malfunction. See *also* Air Permit Condition C. 5.b.(2).n. Furthermore, 40 C.F.R. 63.1206(c)(2)(v)(A)(2) states that OPL or emission exceedances resulting from malfunctions are not violations of the MACT rules if the terms of the SSMP are followed. As discussed above, clinker fall events, including energetic ash falls, are malfunctions, and HTS has followed the terms of its SSMP with respect to each clinker fall that has occurred. Therefore, applicable regulation states that the MACT emission standards did not apply during those events and those events are not violations.

The table in **Attachment 4** identifies allegations that should not be subject to enforcement for the reasons discussed above. In many cases, one malfunction event resulted in multiple exceedances. For example, the allegations identify three different OPL exceedances that arose

from the same energetic ash incident on 4/12/11. Given that the energetic ash fall was a malfunction, none of the exceedances of the MACT standard resulting from that event are subject to enforcement. HTS has organized the table by incident date and correlated the different allegations according to incident date.

The events in the table are separated by type and color coded. Events in red did not occur and are in the FOV in error. Events in yellow are those that continued from one day to next but were actually only one event that was otherwise captured in the FOV allegations. The events in green were the result of clinker falls that HTS classified as a malfunction, either clinker fall or otherwise. Based on the discussion above, all of the allegations identified in the table should be removed from the FOV.

3. Recordkeeping and reporting allegations

Paragraphs 99-101 of the FOV allege that HTS fails to record the instantaneous pressure of the SCC and the inlet and outlet shrouds and thereby is not in compliance with 40 C.F.R. 63.1211(b)'s requirement to maintain measurements to document and maintain compliance with the pressure parameters in MACT subpart EEE. As described below, HTS has a system in place that monitors and evaluates pressures at a frequency that is more than adequate to detect combustion zone leaks. The system initiates AWFCOs and records these events when they occur. (System effectiveness is demonstrated through weekly performance testing.) HTS' system meets the regulatory requirements related to instantaneous monitoring.

The definition of instantaneous monitoring can be found at 40 C.F.R. § 63.1201(a). It is defined as *"detecting and recording pressure, without use of an averaging period, at a frequency adequate to detect combustion system leak events from hazardous waste combustion."* HTS' system monitors four parameters every ¼ second – a frequency that is effective at detecting combustion system leak events from the incinerator, and, as a result, meets this regulatory requirement.

In a letter from EPA to the facility dated September 4, 2003, the agency approved a petition for alternative monitoring for combustion system leaks. This approved strategy requires HTS to initiate an AWFCO when the following conditions occur:

- a. The pressure in the SCC is greater than zero inches of water column for more than 10 seconds; or
- b. The pressure in the SCC is greater than the pressure in the inlet or outlet end shroud at any time; or
- c. The pressure in the SCC is greater than ambient pressure for more than 2 seconds during operating time when the pressurizing equipment for either shroud has failed.

To comply with these requirements, HTS monitors four system parameters: pressure in the combustion zone; pressure in the inlet shroud; and differential pressure between shrouds and SCC at both the inlet and outlet shrouds. The distributed control system (DCS) used to control and operate the combustion system measures and evaluates these parameters every ¼ second. If the measurements of these parameters meet any of the criteria specified in the approved monitoring protocol discussed above, an automatic waste feed cutoff (AWFCO) will engage.

This system is tested on a weekly basis and records of this testing are retained in the operating record per 40 C.F.R §§ 1206(c)(3)(vii) and 1211(b). In addition, the method used for control of combustion system leaks, as well as the monitoring procedures, is documented in the facility's Quality Control Plan for HTS' Continuous Monitoring System.

Finally, HTS maintains continuous process data, including SCC and shrouds pressure, to assist with operation. Data is recorded at variable rates at a maximum of one-minute and a minimum of one-second intervals. A value is recorded when an exception to the previous value is

observed or the maximum time of one minute elapses. In regards to pressure monitoring, an exception occurs when a value varies by more than 2% of the instrument's span, which in this case is 6 inches of water column (inWC). It is not uncommon to observe records of the SCC pressure at one to two second intervals for extended periods.

ESTIMATED ENVIRONMENTAL IMPACT OF ALLEGED VIOLATIONS

HTS takes seriously its obligation to protect the environment including through compliance with its Air Permit. As discussed above, it investigates every emission standard and OPL exceedance. Part of this investigation provides HTS with data that allows the company to understand the duration and potential impact on air emissions of the exceedance. At the end of the FOV, EPA recites the potential health effects of each of the pollutants controlled by the Air Permit. Based on data from its OPL exceedance investigations, HTS can reasonably conclude that the OPL exceedances cited in the FOV resulted in limited, if any, actual exceedance of the emission limitations in its Air Permit or the MACT rules limiting any potential for harm to human health and the environment.

Each of the OPL exceedances that are cited as violations corresponds to an emissions standard established in the HWC MACT. Although exceedance of an OPL (other than via malfunction) can result in a violation of the permit, an exceedance of an OPL does not necessarily result in an exceedance of an emission standard. That is, an OPL exceedance does not necessarily result in harm to human health or the environment.

One basis for this conclusion is the operational differences between a Comprehensive Performance Test, when OPLs are set, and normal day to day operations. In short, the CPT conditions mimic the worst case/highest range of operational capabilities, so that the OPLs set will ensure that air emission limits can be met even at this level of operation.

Therefore, during the CPT, waste throughput, constituent feed rates, and other parameters are maximized while other parameters like combustion temperatures are minimized. These testing conditions provide the basis for OPLs that help maintain compliance with emission limits when the facility is run at maximum capacity.

CPTs are conducted every 5 years, so OPLs can be adjusted over time. During its most recent (2010) CPT, HTS established the OPLs currently in place by operating its incineration system at essentially a worst case scenario. For example, during non-CPT operation at HTS, waste feed rates rarely exceed 25,000 lb/hr; while during the 2010 CPT, HTS averaged 35,089 lb/hr. Thus, HTS' normal operations are less than two-thirds of the feed rate established during the test when emissions were measured and OPLs were set. Similarly, metals, ash and total chloride constituent feed rates were maximized during the 2010 CPT, but typically HTS feeds these constituents at a relatively small fraction of their respective constituent feed rate limits.

This difference in waste and constituent feed rates leads to the conclusion that actual emissions during normal operations are significantly below the amounts the facility is permitted to emit. Therefore, it cannot be assumed that the short duration exceedances of OPLs cited in the FOV that occurred when the facility was operating under normal parameters prior to the OPL exceedance event resulted in exceedances of permitted emission limits.

Not only are air emissions lower during non-CPT operations, but also the emissions measured during the CPT were already significantly less than the MACT emission limits. The table below compares the HWC MACT emission limits and the emissions measured during the 2010 CPT.

Emission Parameter	Unit	Limit	2010 CPT Result	Percentage of Limit
PCDDs/PCDFs	ng/dscm	0.2	0.0043	2.2%

Mercury	µg/dscm	130	7.04	5.4%
SVM	µg/dscm	230	128.7	56.0%
LVM	µg/dscm	92	18.2	19.8%
HCL/CL2	Ppmv	32	1.67	5.2%
PM	gr/dscm	0.013	0.0024	18.5%
DRE	%	99.99	99.9999	--

This shows that the emissions measured during the 2010 CPT – when operating conditions were being maintained at worst case levels - were still a fraction of the emissions allowed by regulation.

Furthermore, data gleaned from the OPL exceedance investigations demonstrates that, in general, the OPL exceedances were of short duration and did not vary significantly from the standard. Combining this fact with the fact that ordinary waste and constituent feed rates are lower than CPT levels, it is not reasonable to assume that all OPL exceedances identified in the FOV resulted in exceedance of the corresponding emission standards. It is therefore reasonable to conclude that impact on human health and the environment, if any, from the majority of these exceedances was negligible.

In regards to the alleged violations listed in the FOV of the HWC MACT THC standard, exceedances of this standard are infrequent and the impact is minimal. Operating statistics demonstrate that HTS has an excellent performance record. From November 2010 to December 2014, HTS incinerated 1,123,493 containers of waste. From HTS' exceedance investigations, the Investigation Team discovered that only 144 of the 1,123,493 containers charged to the incinerator resulted in an exceedance of the THC standard. This represents a success rate of 99.99% and percent error of 0.0128%. Furthermore, these THC violations resulted in only 392 minutes where the level of hydrocarbons measured in the stack exceeded the 10 ppm MACT standard, representing 0.018% of the facility's total operating time over that period.

As discussed above and described in **Attachment 1**, the causes of THC exceedances and all OPL exceedances are thoroughly investigated at HTS. HTS does not take this process lightly as these events are not only a compliance issue but can also have a negative economic impact on the company. THC exceedances trigger automatic waste feed cutoffs (AWFCO) of the incineration system. When the AWFCO system is engaged, HTS is not utilizing its most profitable asset. As a result, from both a compliance and economic perspective it is in the facility's best interest to avoid THC exceedances.

In recent years, HTS has made a number of changes and process improvements aimed at preventing THC exceedances. To improve waste preparation, HTS has added personnel experienced in waste identification and the chemical characteristics of the incineration process to the processing area. These individuals manage the inspection and sampling of incoming waste shipments and use this hands-on knowledge to formulate processing instructions. To facilitate the transfer of this knowledge to the technicians performing the work, HTS has developed a sophisticated intranet computer system that allows all HTS employees, including process workers, to view waste profile information and processing instructions. This intranet computer system can be accessed from any computer at the facility as well as the hand-held tablets used by the technicians. In addition to providing processing instructions and knowledge, HTS has also improved its ability to prepare materials for incineration by installing equipment that assists in this process. New scales have been installed to ensure that optimal feed weights are being achieved prior to incineration and specialized pumps and tools have been purchased to better prepare materials for proper combustion.

To improve the combustion of materials once they reach the incinerator, HTS has performed extensive investigations and studies. A study of the combustion chamber and the flue gas path resulted in the installation of steam nozzles in the SCC that improve residence time and air

mixture. Also, injection of oxygen into the SCC was employed to enhance the combustion process. To improve liquid lance flows and prevent reduced atomization, HTS has implemented a weekly lance cleaning procedure and is investigating mechanisms that will automatically clean certain lances. All of these changes have been implemented to help the facility improve operations and have been undertaken at considerable cost.

HTS stresses to EPA that, although the exceedances identified in the FOV may seem numerous, the time period over which they occurred and the nature of the facility's operation make them relatively infrequent. Furthermore, HTS' continuous emissions monitoring data show that the actual impact of the short-term THC emission rate exceedances has been a total of 703.94 pounds of THC emitted over five years, with an average exceedance of 173 lbs per year between 2011-2014. HTS' Air Permit allows 30,000 pounds of THC emissions annually. And, actual annual emissions of THC average approximately 1,564 pounds a year in total. Since actual annual emissions of THC are only 5.2% of allowable emissions, it is reasonable to conclude that the exceedances of the short-term THC limit did not result in exceedances of the annual limit, and caused minimal impact on human health and the environment.

As the process of resolving this FOV moves forward, HTS asks EPA to consider the infrequent nature and minimal impact of these emission events as well as the effort and expense that has been undertaken to prevent and minimize them.

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HTS appreciates the opportunity to present this information to EPA. As discussed in this letter and presented in the Attachments, HTS has a strong commitment to compliance and to working cooperatively with federal and state regulators. Although HTS self-reported the alleged violations as exceedances of OPL and other MACT standards, The majority of allegations are tied to clinker fall and energetic ash malfunction events and should not be the subject of enforcement under the regulations. HTS looks forward to further discussions with the agency on June 18.